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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,237	12/29/2006	Pierre Laboube	5310-08800	6301
35690 7590 01/06/2011 MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C. P.O. BOX 398 AUSTIN, TX 78767-0398				
EXAMINER HAMO, PATRICK				
ART UNIT 3746		PAPER NUMBER		
NOTIFICATION DATE 01/06/2011		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/552,237

Applicant(s)

LABOUBE ET AL.

Examiner

PATRICK HAMO

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to amendments filed on December 9, 2010.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al., US 5,980,218.

In regard to claim 1:

Takahashi discloses a centrifugal compressor unit comprising a motor 2 driving a rotor and at least one compressor 1a, 1b with a stator body (the non-rotating portion of centrifugal compressor) and impellers 28a, 28b driven by the rotor, the motor and compressors mounted in a common housing (see fig. 2) sealed against the outside, a set of bearings 25, 26 for axially 26 and radially 25 guiding the rotor, and cooling means that tap off some of the gas handled by the compressor at an outlet 5a from a first stage compressor 1a (via 14a and 20a to 16, fig. 1), passing the gas through the motor means and through the bearings (see fig. 3) and reinjecting into the inlet side 4a (via 17 and 15, fig. 1), wherein the cooling means comprises a set of internal passages (see fig. 3, unlabeled passages with inlets at 16a-d and outlets at 17a-e), wherein the flow of

cooling gas in the motor means (from 16b to 17b/c) is separate from the flow of cooling gas in the bearings (from 16a to 17a and 16c/d to 17d/e), the flow converging outside the compressor unit at 17, or at least at 15, upstream of the first compression stage.

In regard to claim 2:

The lines 16a-d are external to the compressor unit and collect the gas from the outlet side of compressor 1a and feed into the internal passages.

In regard to claim 3:

The passages for motor and bearings are parallel.

In regard to claims 4 and 11:

The filter 13 filters gas handled by the compressor.

In regard to claim 6:

Each internal passage of the bearings (16a to 17a, 16c to 17d and 16d to 17e) is directed radially externally to the compressor unit and feeds one bearing each (25a, 26, and 25b respectively).

In regard to claim 9:

Pressure regulator 8 regulates the flow rate of the coolant for the motor and the bearings.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Grob et al., US 6,464,469.

In regard to claims 5 and 12:

Takahashi discloses all of the limitations substantially as claimed except for an axial passage running from one bearing to the other and fed at one of its ends by the external lines, the radial bearings arranged at ends of the driven shaft. However, Grob teaches radial bearings 5 on two ends of a motor 2, both radial bearings cooled by gas flowing in through passage 11, the passage connecting them running axially and radially outward of the motor 2. It would have been obvious to a person having ordinary skill in the art to have modified the coolant system of Takahashi with that of Grob, a coolant system for a substantially similar turbocompressor with motor and bearing arrangement in a sealed motor/compressor unit, as the results of orientation and arrangement of the coolant flow, as taught by Takahashi and Grob are dependant on design constraints and one of ordinary skill in the art would have found the results of providing an axial passage connecting both bearings as taught by Grob predictable.

In regard to claim 13:

Takahashi discloses that each internal passage of the bearings (16a to 17a, 16c to 17d and 16d to 17e) is directed radially externally to the compressor unit and feeds one bearing each (25a, 26, and 25b respectively).

In regard to claims 14 and 15:

Takahashi discloses that each internal passage of the bearings (16a to 17a, 16c to 17d and 16d to 17e) is directed radially externally to the compressor unit and feeds one bearing each (25a, 26, and 25b respectively), and the flow of gas from the bearings and the motor is mixed in 17. However, Takahashi does not explicitly disclose that the motor is fed with cooling gas via an orifice formed in an end cover. Takahashi instead discloses that the motor is fed cooling gas through the cylindrical cover at 29b. However, one having ordinary skill in the art would have found this to be an obvious rearrangement of parts and a design choice predicated on the arrangement of the motor and compressor stages. It would have been obvious to one having ordinary skill in the art to arrange the motor coolant inlet in an end cover of the motor/compressor unit to obtain the predictable result of supplying coolant to the motor.

In regard to claim 16:

Pressure regulator 8 of Takahashi controls the flow rate of the coolant for the motor and the bearings.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi.

Takahashi discloses that each internal passage of the bearings (16a to 17a, 16c to 17d and 16d to 17e) is directed radially externally to the compressor unit and feeds one bearing each (25a, 26, and 25b respectively), and the flow of gas from the bearings and the motor is mixed in 17. However, Takahashi does not explicitly disclose that the motor is fed with cooling gas via an orifice formed in an end cover. Takahashi instead discloses that the motor is fed cooling gas through the cylindrical cover at 29b. However, one having ordinary skill in the art would have found this to be an obvious rearrangement of parts and a design choice predicated on the arrangement of the motor and compressor stages. It would have been obvious to one having ordinary skill in the art to arrange the motor coolant inlet in an end cover of the motor/compressor unit to obtain the predictable result of supplying coolant to the motor.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of applicant's admitted prior art (fig. 1, paragraphs [0004]-[0008]).

Takahashi discloses all of the limitations of claims 1, and discloses the means for collecting flows of cooling gas on the same side of the compressor unit (see fig. 3). However, Takahashi fails to disclose an equalizing piston. Applicant admits as prior art an integrated motor/compressor unit with an equalizing piston 49 that equalizes the axial pressure applied to the driven shaft while the compression unit is in operation

(paragraph [0009]) such that it would have been obvious to a person having ordinary skill in the art to have added the piston to the unit of Takahashi to aid in equalizing pressure during operation of the compressor.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 16 in view of applicant's admitted prior art.

The references as applied to claim 16 teach all of the limitations substantially as claimed, with Takahashi disclosing the means for collecting flows of cooling gas on the same side of the compressor unit (see fig. 3). However, the references fail to teach an equalizing piston. Applicant admits as prior art an integrated motor/compressor unit with an equalizing piston 49 that equalizes the axial pressure applied to the driven shaft while the compression unit is in operation (paragraph [0009]) such that it would have been obvious to a person having ordinary skill in the art to have added the piston to the unit of Takahashi in view of Grob to aid in equalizing pressure during operation of the compressor.

Response to Arguments

Applicant's arguments filed December 9, 2010 have been fully considered but they are not persuasive.

Applicant contends that Takahashi, relied upon for the rejection of claim 1, does not teach that the motor 2 and each compressor 1a, 1b is mounted in a common housing sealed against the gas handled by the compressor unit. However, as seen in

fig. 2, it is apparent that the three elements 1a, 1b and 2 are in a continuous housing not dissimilar to that of fig. 6 of the applicant's invention. Though interior views are not shown, the impellers of the compressors and the rotor and stator of the motor are all disclosed inside these housings, and the only points at which fluid is allowed to enter is at inlet 7, akin to inlets E'1 and E'2 of the applicant's claimed invention. Furthermore, the housing is disclosed as "sealed against the housing." For these reasons, the examiner maintains the interpretation of the Takahashi reference and therefore the rejection of the claims. The examiner has also reviewed the rejections of the dependent claims and maintains that the limitations therein are taught by the cited references, and therefore these rejections are similarly maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK HAMO whose telephone number is (571)272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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